ABSTRACT OF THE DISCLOSURE

The subject invention provides an assembly for measuring movement of and a torque applied to a shaft extending between first and second ends and being hollow, specifically for measuring rotation and twisting of the shaft. A permanent magnet is disposed within the shaft for producing a parallel magnetic field emanating radially from the shaft. A sensor mechanism is positioned adjacent the shaft to detect the magnetic flux produced in response to the shaft being moved. The sensor mechanism includes a magnetostrictive (MR) material disposed annularly about the shaft and extends between first and second edges. A flux collector extends beyond the first and second edges of the magnetostrictive material to direct the magnetic flux through a Hall sensor to detect an axial component of the magnetic flux in response to twisting. A positional ring extends annularly around and spaced from the shaft and a positional sensor is disposed between the positional ring and the shaft for measuring a radial component of the magnetic flux in response to rotating.